

## A NEW SPECIES OF THE GENUS *FLATOCERUS* LIANG ET ZHENG FROM GUANGDONG IN CHINA (ORTHOPTERA, TETRIGOIDEA, DISCOTETTIGIDAE)

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**Abstract** The genus *Flatocerus* from China is reviewed, with nine species recorded, including one new species, *Flatocerus nigriritibialis* sp. nov., from Nanling Area in Guangdong Province, China. A key to 9 species of the genus *Flatocerus* from China is given. Type specimens are deposited in the Institute of Zoology, Shaanxi Normal University, China.

**Key words** Orthoptera, Tetrigoidea, Discotettigidae, *Flatocerus*, new species.

### Introduction

The genus *Flatocerus* was established by Liang and Zheng in 1984, type species: *F. nankunshanensis* Liang et Zheng, 1984, Guangdong, China. The genus includes the following 7 species: *F. hainanensis* Liang, 1988, *F. wuyishanensis* Zheng, 1991, *F. guizhouensis* Wang, 1992, *F. daqingshanensis* Zheng et Jiang, 1998, *F. dentifemura* Zheng, 2003, *F. chishuiensis* Zheng et Shi, 2006, *F. brachynotus* Liang, Chen et Chen, 2008.

While identifying the Tetrigoidea specimens collected from The Nanling National Nature Reserve Area of Guangdong in Aug. 2010, a new species of the genus *Flatocerus* Liang et Zheng is found and is described below. The type specimens are deposited in the Institute of Zoology, Shaanxi Normal University, China.

### *Flatocerus nigriritibialis* sp. nov. (Figs 1 – 3)

Female. Body small. Vertex wider, width of vertex 1.25 times width of an eye, anterior margin straight. Not protruding before eyes. Only extended up to half of inner margin of eyes, midkeel distinctly completed; vertex and frontal ridge forming obtuse angular in profile, between antennae extremely protruding forwards; sulcus of frontal ridge narrower, lateral margins parallel, width of sulcus narrower than width of basal segment of antennae. Antennae inserted under lower margin of eyes, 12 segmented, from third to sixth segments filiform, from seventh to tenth segments compressed, apical two segments taper. Eyes globose and distinctly protruding, lateral ocelli located on lower one third of anterior margin of eyes. Pronotum ridge-shaped, anterior margin obtuse angular convex; midkeel high and lamellar, upper margin of pronotum arched in profile, lateral keels of prozona absent; humeral angle round arched, with a

pair oblique longitudinal keels between shoulders, hind process reaching top of hind femur, apex sharp; lateral lobes of pronotum turned downward, apex truncated, posterior margins of lateral lobes of pronotum with two concavities. Tegmina long oval, hind wing nearly reaching top of hind process. Both upper and lower margins of anterior femora and middle femora straight, width of midfemur wider than tegmina; posterior femur short and stout, upper midkeel of posterior femur with fine teeth, antegenicular and genicular denticles sharp, inner and outer sides of hind tibia both with 7 spines; length of first segment of hind tarsi nearly equal to third, first and third pulvilli equal, second pulvillus smaller and indistinct. Ovipositor long and narrow, both upper and lower of valvulae with large teeth. Posterior margin of subgenital plate with an obtuse angular convex in middle.

Body dark brown; antennae black, apical two segments white; hind wings black; posterior femur dark brown; both upper and lower midkeel with many white spots, lower margin of posterior femur black; posterior tibia black; ventral side of abdomen black.

Male. Unknown.

♀. Length of body 10.7 – 11.0 mm; length of pronotum 10.0 – 10.3 mm; length of hind femur 6.0 – 6.2 mm.

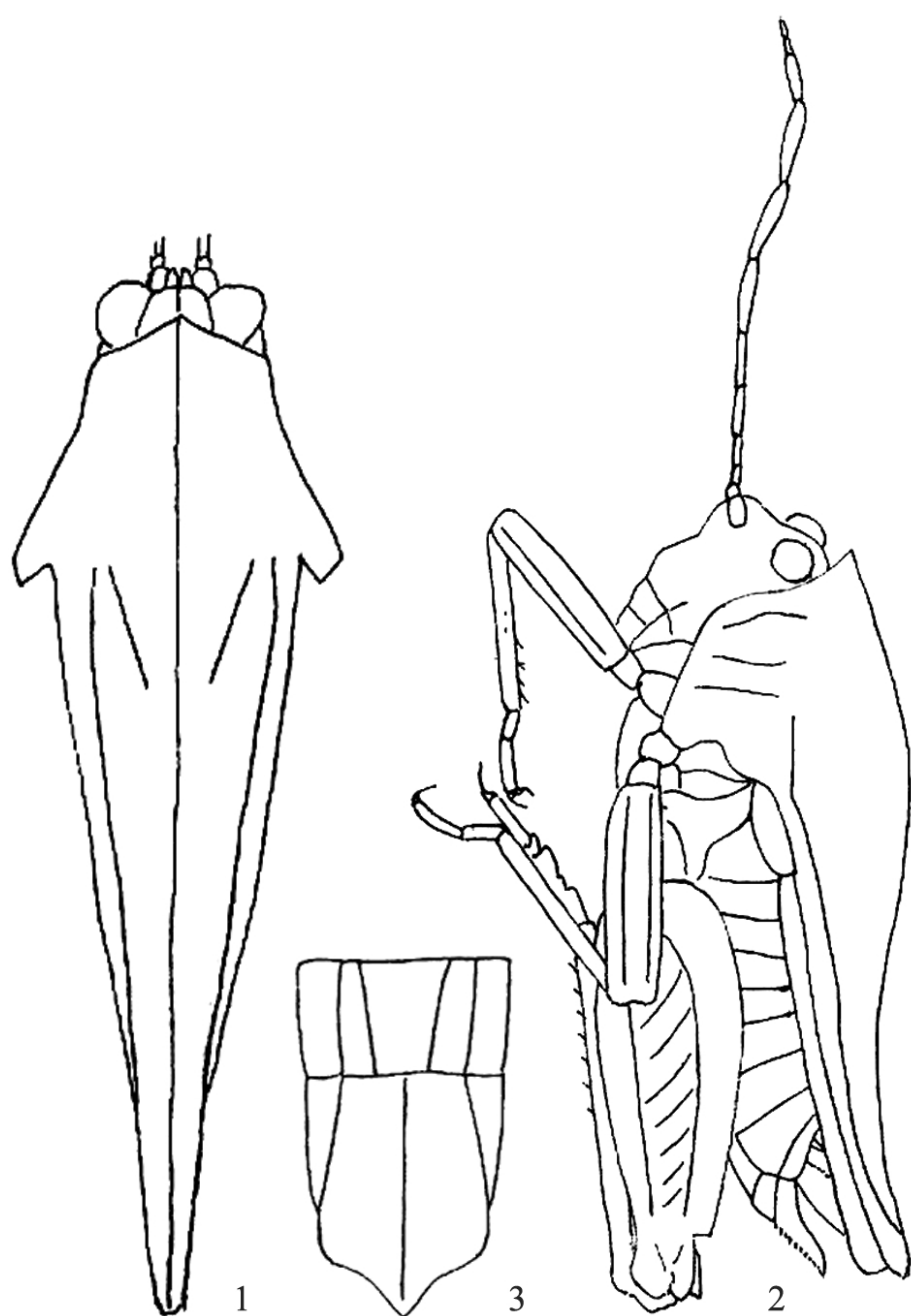
Holotype ♀, Guangdong, Ruyuan (Nanling National Forest Garden), alt. 800 m, 24 Aug. 2010, collected by BAI Yi. Paratype 1 ♀, same data as holotype.

The new species is allied to *Flatocerus wuyishanensis* Zheng, 1991, but differs in: 1) width of vertex 1.25 times the width of an eye; 2) hind margin of pronotum reaching top of hind femur; 3) hind margin of subgenital plate of female with an obtuse angular

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Figs 1 – 3. *Flatocerus nigrithibialis* sp. nov. 1. Head and pronotum, dorsal view. 2. Body, lateral view. 3. ♀, subgenital plate, ventral view.

process in the middle; 4) lower outside of hind femur black; 5) hind tibia black. The new species is also similar to *Flatocerus chichuiensis* Zheng et Shi, 2006, but differs in: 1) lateral keels of prozona absent; 2) hind wing reaching the top of hind femur; 3) hind margin of subgenital plate of female with an obtuse angular process in the middle.

**Etymology.** The specific name is derived from the Latin “*nigr*” and “*tibia*”, meaning the color of hind tibia.

#### Key to the species of the genus *Flatocerus* Liang et Zheng, 1984.

- 1 (10) Vertex narrower, width of vertex equal to or narrower than width of an eye
- 2 (7) Hind process of pronotum not surpassing or slightly surpassing top of hind femur
- 3 (6) Hind process of pronotum slightly surpassing top of posterior femur; without lateral keels in prozona
- 4 (5) Width of vertex equal to width of an eye; without a pair short longitudinal keels between shoulders ..... *F. nankunshanensis* Liang et Zheng
- 5 (4) Width of vertex narrower than width of an eye; with a pair short longitudinal keels between shoulders ... *F. guizhouensis* Wang
- 6 (3) Hind process of pronotum reaching knee of posterior femur, lateral keels of prozona distinct, with a pair short longitudinal keels between shoulders ..... *F. brachynotous* Liang et al.
- 7 (2) Hind process of pronotum reaching middle of posterior tibia
- 8 (9) Width of vertex equal to width of an eye; eighth to tenth

segments of antennae distinctly swelled and compressed; width of midfemur wider than width of tegmina; upper midkeel of posterior femur without teeth .....

..... *F. daqingshanensis* Zheng et Jiang

- 9 (8) Width of vertex distinctly narrower than width of an eye; 6th to 10th segments of antennae distinctly flat and expanded; width of midfemur equal to width of tegmina; upper midkeel of posterior femur with teeth ..... *F. dentifemura* Zheng

- 10 (1) Vertex wider, width of vertex 1.1 – 1.5 times the width of an eye

- 11 (12) Anterior margin of pronotum truncate, upper margin of pronotum straight in profile ..... *F. hainanensis* Liang

- 12 (11) Anterior margin of pronotum with a triangular convex in the middle; upper margin of pronotum arched in profile

- 13 (14) Width of vertex 1.5 times the width of an eye; hind process of pronotum surpassing the top of posterior femur; hind margin of subgenital plate of female with a acute angle convex in the middle; lower outside of posterior femur not black; hind tibia brown ..... *F. wuyishanensis* Zheng

- 14 (13) Width of vertex 1.10 – 1.25 times the width of an eye; posterior femur black or lower outside of hind femur black; hind tibia dark brown or black

- 15 (16) Lateral keels absent in prozona, hind process of pronotum reaching the top of posterior femur, hind margin of subgenital plate of female with an obtuse angle convex in the middle; lower outside of posterior femur black; posterior tibia black .....

..... *F. nigrithibialis* sp. nov.

- 16 (15) With lateral keels in prozona; hind process of pronotum surpassing the top of posterior femur in male; reaching or not reaching the top of posterior femur in female; hind margin of subgenital plate of female with an acute angle convex in the middle; posterior femur black; posterior tibia dark brown ...

..... *F. chichuiensis* Zheng et Shi

#### REFERENCES

- Deng, W-A, Zheng, Z-M and Wei, S-Z 2007. Fauna of Tetrigoidea from Yunnan and Guangxi. Guangxi Science and Technology Press, Nanling. 1 – 458.
- Liang, G-Q and Zheng, Z-M 1984. A new genus and a new species of Tetrigidae from Guangdong Province (Orthoptera: Tetrigidae). *Acta Entomologica Sinica*, 27 (4): 430 – 432.
- Liang, G-Q 1988. A new species of the genus *Flatocerus* from Hainan Island (Orthoptera, Tetrigidae). *Acta Zootaxonomica Sinica*, 13 (1): 65 – 66. [梁铭球, 1988. 海南岛扁角蚱属一新种 (直翅目, 蚱科). 动物分类学报, 13 (1): 65 ~ 66]
- Liang, G-Q and Zheng, Z-M 1998. Fauna Sinica, Insecta, Vol. 12, Orthoptera, Tetrigoidea. Science Press, Beijing. 1 – 278.
- Liang, G-Q, Chen, Y-Q and Chen, Y-L 2008. A new species of the genus *Flatocerus* (Orthoptera, Discotettigidae) from Yunnan, China. *Acta Zootaxonomica Sinica*, 33 (1): 138 – 140. [梁铭球, 陈又清, 陈彦林, 2008. 云南扁角蚱属一新种 (直翅目, 扁角蚱科). 动物分类学报, 33 (1): 138 ~ 140]
- Jiang, G-F and Zheng, Z-M 1998. Grasshoppers and Locusts from Guangxi. Guangxi Normal University Press, Guilin. 1 – 361.
- Wang, Y-Z 1992. A new genus and two new species of grasshoppers from Wuling Mountain, China. *Zoological Research*, 13 (3): 251 – 255.
- Zheng, Z-M 1991. A new species of the genus *Flatocerus* from Fujian Province (Orthoptera: Tetrigidae). *Wuyi Science*, 8: 1 – 3.
- Zheng, Z-M 1992. Orthoptera: Tetrigidae. Insects of Wuling Mountain Area Southwestern China. Science Press, Beijing. 81 – 86.
- Zheng, Z-M 2005. Fauna of Tetrigoidea from Western China. Science Press, Beijing. 1 – 501.
- Zheng, Z-M and Shi, F-M 2006. Orthoptera: Discotettigidae, Cladonotidae, Scelimenidae, Metrodoridae and Tetrigidae. Insects from Chichui spinulose tree from Landscape. Guizhou Science and Technology Publishing House. 79 – 92.

中国广东省扁角蚱属一新种（直翅目，蚱总科，扁角蚱科）

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**摘 要** 记述扁角蚱属 9 种，包括采自广东省南岭地区 1 新种，即黑胫扁角蚱 *Flatocerus nigrithibialis* sp. nov.，附有分种检索表，新种的模式标本保存于陕西师范大学动物研究所。

**黑胫扁角蚱，新种 *Flatocerus nigrithibialis* sp. nov.**（图 1~3）

新种近似于武夷山扁角蚱 *Flatocerus wuyishanensis* Zheng, 1991，主要区别为：1）头顶宽为 1 眼宽的 1.25 倍；2）前胸背板后突到达后足股节顶端；3）雌性下生殖板后缘中央钝角形突出；4）后足股节下侧外面黑色；5）后足胫节黑色。

**关键词** 直翅目，蚱总科，扁角蚱科，扁角蚱属，新种。

**中图分类号** Q969.26

新种也近似于赤水扁角蚱 *Flatocerus chichaiensis* Zheng et Shi, 2006，主要区别为：1）沟前区缺侧隆线；2）后翅到达后足股节顶端；3）雌性下生殖板后缘中央钝角形突出。

正模 ♀，副模 1 ♀，广东省乳源（南岭国家森林公园），海拔 800 m，2010-08-24，白义采。

词源：新种种名以拉丁词“*nigr* 黑”及“*tibia* 胫节”为名。